IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method of logging and trending real time measurement data, the method comprising:

a logger application executing on a first computer system receiving a measurement stream comprising a plurality of real time data values;

the logger application writing portions of the plurality of real time data values to respective shared memory sections of a memory in the first computer system in a modular fashion;

wherein each of the portions of the plurality of real time data values in each of the respective shared memory sections is independently accessible by a trender application executing in a second computer system;

initiating the trender application on the second computer system;

the trender application generating a query request for a first portion of the plurality of real time data values;

the first computer system sending a single message to the second computer system, wherein the single message comprises the first portion of the plurality of real time data values;

the trender application receiving the single message comprising the first portion of the plurality of real time data values;

the trender application displaying the first portion of the plurality of real time data values.

2. (Currently Amended) The method of claim 1, wherein each of the portions of the plurality of real time data values in each of the respective shared memory sections is independently accessible by a trender application executing in a second computer system using a single network message.

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3. (Currently Amended) The method of claim 1, wherein each of the portions of the plurality of real time data values in each of the respective shared memory sections independently and accurately represents a subset of the measurement stream.

4. (Cancelled)

5. (Original) The method of claim 4, wherein the single message is a delta page.

6. (Currently Amended) The method of claim 4,

wherein the logger application receives the measurement stream and writes the portions of the plurality of real time data values to respective shared memory sections of the memory at a first data rate;

wherein the trender application generates the query request for the first portion of the plurality of real time data values at a second data rate, wherein the second data rate is less than the first data rate.

7. (Original) The method of claim 6,

wherein the first computer system sending a single message to the second computer system comprises:

a first observer software program executing on the first computer system querying the memory for a most recent portion of data at the second data rate; and

the first observer software program sending the most recent portion of data to the second computer system at the second data rate after said querying the memory;

wherein the trender application receiving the single message comprises:

a second observer software program on the second computer system receiving the most recent portion of data at the second data rate from the first observer software program; and

the second observer software program writing the most recent portion of data to a memory location.

8. (Original) The method of claim 7, wherein the memory location is a database.

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9. (Currently Amended) The method of claim 1, wherein the trender application is operable to partially replicate the plurality of real time data values comprising the measurement stream.

10. (Currently Amended) The method of claim 1, wherein the logger application writing portions of the plurality of real time data values to respective shared memory sections of a memory in the first computer system in a modular fashion comprises:

creating a header record comprising a series of bits, wherein the bits in the header record indicate a changed status of the respective shared memory sections;

the logger application writing the header record in the shared memory.

11. (Currently Amended) A method of logging and trending real time measurement data, the method comprising:

a logger application executing on a first computer system writing a first plurality of real time data values to a first shared memory section in the first computer system during a first time period;

initiating a trender application;

the trender application executing on a second computer system generating a query request for the first plurality of real time data values and sending the query request to the first computer system;

the first computer system sending a single message to the second computer system, wherein the single message comprises the first plurality of real time data values.

12. (Currently Amended) The method of claim 11, further comprising:

performing a single write operation in the second computer system to store the first plurality of real time data values in a memory of the second computer system.

13. (Currently Amended) The method of claim 12, wherein said performing a single write operation comprises:

updating a local cache in a memory of the second computer system with the first

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plurality of real time data values using a single write operation.

14. (Currently Amended) The method of claim 12, further comprising:

the trender application reading the first plurality of real time data values from the memory of the second computer system after said performing a single write operation in the second computer system to store the first plurality of real time data values in a memory of the second computer system.

15. (Original) The method of claim 12, wherein the first computer system sending a single message to the second computer system comprises the first computer system sending a single network message to the second computer system.

16. (Currently Amended) The method of claim 12, further comprising:

the logger application executing on the first computer system writing second and subsequent pluralities of real time data values to second and subsequent shared memory sections in the first computer system during second and subsequent time periods;

wherein the first, second and subsequent pluralities of real time data values affect only what is written to their respective first, second and subsequent shared memory sections.

17-23. (Cancelled)

24. (Original) A method of processing measurement data, the method comprising:

(a) receiving first measurement data of a first data type of a plurality of data types from a first measurement device of a plurality of measurement devices;

(b) storing the received measurement data in a shared memory location;

(c) appending one or more bits to a first header record wherein the header record comprises a series of bits, wherein each bit in the series of bits represents a section of the stored measurement data in the shared memory location;

(d) retrieving at least a subset of the stored measurement data from the shared memory location substantially concurrently with the measurement data being stored in the shared memory location;

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repeating (a) - (d) for second and subsequent measurement data wherein a second header record is created when the first header record reaches a user specified number of bits and subsequent header records are created when the second header record reaches the user specified number of bits.

25. (Original) The method of claim 24, wherein measurement data is received for a user specified time interval.

26. (Original) The method of claim 24,

wherein each bit in each header record is designated as "changed" for those sections of stored measurement data which comprise any change in the measurement data from previously stored measurement data from a same measurement device;

wherein each bit in each header record is designated as "not changed" for those sections of stored measurement data which comprise no change in the measurement data from previously stored measurement data from a same measurement device.

27. (Original) The method of claim 24, wherein in retrieving at least a subset of the stored measurement data from the shared memory location substantially concurrently with the measurement data being stored in the shared memory location, measurement data associated with a single header record is retrieved.

28. (Original) The method of claim 24, wherein in retrieving at least a subset of the stored measurement data from the shared memory location substantially concurrently with the measurement data being stored in the shared memory location, measurement data associated with one or more header records is retrieved.

29. (Original) The method of claim 24, wherein the first measurement data comprises live data acquired from a data acquisition device.

30. (Original) The method of claim 24, wherein the first measurement data comprises one or more of: waveform data; .single-point data, wherein single-point data

comprises a data value and a data timestamp; alarm data; event data.

31. (Original) The method of claim 24, wherein the first measurement data comprises measurement data acquired from a measurement device.